WHAT IS CLAIMED IS:

1. An isolated or recombinant polypeptide:

A) that:

a) specifically binds polyclonal antibodies generated against a 12 consecutive amino acid segment of SEQ ID NO: 2; and

b) comprises at least one sequence selected from the following group (see SEQ ID NO: 2): LeuCysPheArgMetLysAsp; ValLeuTyrLeuHisAsn; GlnLeuLeuAlaGly; IleSerValValProAsn; SerProValIleLeuGlyVal; GlnCysLeuSerCysGlyThr; ProIleLeuLysLeuGlu; PheTyrArgArgAspMetGly; LeuThrSerSerPheGluSer; PheLeuCysThrSer; GlnProValArgLeuThr; PheTyrPheGlnGln; ArgAlaLeuAspAlaSerLeu; and GlyLeuHisAlaGluLysVal;

B) that:

a) specifically binds polyclonal antibodies generated against a 12 consecutive amino acid segment of SEQ ID NO: 6; and

b) comprises at least one sequence selected from the following group (see SEQ ID NO: 6): SerLeuArgHisValGlnAsp; ValTrpIleLeuGlnAsn; IleLeuThrAlaVal; IleThrLeuLeuProCys; AspProThrTyrMetGlyVal; SerCysLeuPheCysThrLys; ProValLeuGlnLeuGly; PheTyrHisLysLysSerGly; ThrThrSerThrPheGluSer; PheIleAlaValCys; CysProLeuIleLeuThr; PheGluMetIleVal; GlnAspLeuSer; ValProArgLysGluGlnThrVal; SerLysGlySerCysPro; ArgAlaAlaSer; ProCysGlnTyrLeuAspThrLeuGlu;and SerGlyThrThr; or

C) that:

a) specifically binds polyclonal antibodies generated against a 12 consecutive amino acid segment of SEQ ID NO: 13 or 15; and

b) comprises at least one sequence selected from the following group (see SEQ ID NO: 13 or 15):

ITGTIND; VWTLQG; NLVAV; VAVITC; DPIYLGI; MCLYCEK; PTLQLK; FYRAKTG; RTSTLES; FIASS; QPIILT; FELNI; SMCK; NDLN; VPR(R/S)TSVT; VPRSDSVT; TCKYPEALE; TGRT; SKRDQP; or SKGDQP.

2. The polypeptide of Claim 1:

a) wherein said polypeptide comprises a plurality of said sequences selected from said group in section b) of part 1A;

b) wherein said polypeptide comprises a plurality of said sequences selected from said group in section b) of part 1B;

c) wherein said polypeptide comprises a plurality of said sequences selected from said group in section b) of part 1C; or

d) which specifically binds to polyclonal antibodies generated against an immunogen selected from the group consisting of:

i) the polypeptide of SEQ ID NO: 2;

ii) the polypeptide of SEQ ID NO: 6;

iii) the polypeptide of SEQ ID NO: 13; and.

iv) the polypeptide of SEQ ID NO: 15.

3. The polypeptide of:

A) Claim 1A, wherein said 12 consecutive amino acid segment is selected from (see SEQ ID NO: 2):

LeuCysPheArgMetLysAspSerAlaLeuLysValLeuTyrLeuHisAsn-Asn;

IleSerValValProAsnArgAlaLeuAspAlaSerLeuSerProValIle-LeuGlyValGln;

SerProValIleLeuGlyValGlnGlyGlySerGlnCys;

ProIleLeuLysLeuGluProValAsnIleMetGluLeu;

ThrSerSerPheGluSerAlaAlaTyrProGlyTrpPhe;

PheLeuCysThrSerProGluAlaAspGlnProVal;

ThrGlnIleProGluAspProAlaTrpAspAlaProIle; or

ThrSerSerPheGluSerAlaAlaTyrProGlyTrpPhe;

B) Claim 1B, wherein said 12 consecutive amino acid segment is selected from (see SEQ ID NO: 6):
ArgAlaAlaSerProSerLeuArgHisValGlnAspLeu;
SerSerArgValTrpIleLeuGlnAsnAsnIleLeu;
ProValThrIleThrLeuLeuProCysGlnTyrLeu;
GlyValGlnArgProMetSerCysLeuPheCysThr;
PheCysThrLysAspGlyGluGlnProValLeuGlnLeu;
ThrSerThrPheGluSerAlaAlaPheProGlyTrpPhe; and
CysSerLysGlySerCysProLeuIleLeuThrGln; or

C) claim 1C, wherein said 12 consecutive amino acid segment is selected from (see SEQ ID NO: 13 or 15):
SMCKPITGTINDL;
NQQVWTLQGQNL;
PVTVAVITCKYP;
GIQNPEMCLYCE;
YCEKVGEQPTLQL;
TSTLESVAFPDWF;
SKGDQPIILTSE;
SKRDQPIILTSE; and
GKSYNTAFELNIND.

3. The polypeptide of Claim 2, wherein said polypeptide:

i) is a mature protein;
ii) lacks a post-translational modification;
iii) is from a rodent, including a mouse;
iv) is from a primate, including a human;
v) is a natural allelic variant of IL-1δ or IL-1ε;
vi) has a length at least 30 amino acids;
vii) exhibits at least two non-overlapping epitopes that are specific for a rodent IL-1δ;
viii) exhibits a sequence identity over a length of at least about 20 amino acids to SEQ ID NO: 2;
ix) exhibits at least two non-overlapping epitopes which are specific for a rodent or primate IL-1ε;
x) exhibits a sequence identity over a length of at least about 20 amino acids to SEQ ID NO: 6 or 15;

xi) is glycosylated;

xii) has a molecular weight of at least 10 kD with natural glycosylation;

xiii) is a synthetic polypeptide;

xiv) is attached to a solid substrate;

xv) is conjugated to another chemical moiety;

xvi) is a 5-fold or less substitution from natural sequence; or

xvii) is a deletion or insertion variant from a natural sequence.

4. A soluble polypeptide comprising:

a) a sterile polypeptide of Claim 2;

b) said sterile polypeptide of Claim 2 and a carrier, wherein said carrier is:

i) an aqueous compound, including water, saline, and/or buffer; and/or

ii) formulated for oral, rectal, nasal, topical, or parenteral administration.

5. A fusion protein having a polypeptide sequence of Claim 2 and further comprising:

a) a mature protein of Claim 2;

b) a detection or purification tag, including a FLAG, His6, or Ig sequence; or

c) sequence of another cytokine or chemokine.

6. A kit comprising a polypeptide of Claim 2, and:

a) a compartment comprising said protein or polypeptide; and/or

b) instructions for use or disposal of reagents in said kit.

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7. A binding compound comprising an antigen binding site from an antibody, which specifically binds to a mature polypeptide from:

a) SEQ ID NO: 2;

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b) SEQ ID NO: 6;
c) SEQ ID NO: 13; or
d) SEQ ID NO: 15.

8. The binding compound of Claim 7, wherein:
a) said binding compound is an Fv, Fab, or Fab2 fragment;
b) said binding compound is conjugated to another chemical moiety; or
c) said antibody:
i) is raised against a polypeptide comprising a 12 consecutive amino acid segment of SEQ ID NO: 2, 6, 13, or 15;
ii) is raised against a mature IL-1ε;
iii) is raised to a purified rodent IL-1δ or rodent or primate IL-1ε;
iv) is immunoselected;
v) is a polyclonal antibody;
vi) binds to a denatured IL-1δ or IL-1ε;
vii) exhibits a Kd to antigen of at least 30 μM;
viii) is attached to a solid substrate, including a bead or plastic membrane;
ix) is in a sterile composition; or
x) is detectably labeled, including a radioactive or fluorescent label.

9. A kit comprising said binding compound of Claim 7, and:
a) a compartment comprising said binding compound; and/or
b) instructions for use or disposal of reagents in said kit.

10. A composition comprising:
a) a sterile binding compound of Claim 7, or
b) said binding compound of Claim 7 and a carrier, wherein said carrier is:

i) an aqueous compound, including water, saline, and/or buffer; and/or

ii) formulated for oral, rectal, nasal, topical, or parenteral administration.

11. An isolated or recombinant nucleic acid encoding a polypeptide of Claim 2, wherein:

a) said polypeptide of Claim 2 is IL-1δ or IL-1ε from a mammal; or

b) said nucleic acid:

i) comprises the mature coding sequence of SEQ ID NO: 1, 3, 12, or 14;

ii) encodes an antigenic peptide sequence of SEQ ID NO: 2, or SEQ ID NO: 6, 13, or 15;

iii) encodes a plurality of antigenic peptide sequences of SEQ ID NO: 2, or SEQ ID NO: 6, 13, or 15;

iv) exhibits identity to a natural cDNA encoding said segment;

v) is an expression vector;

vi) further comprises an origin of replication;

vii) is from a natural source;

viii) comprises a detectable label;

ix) comprises synthetic nucleotide sequence;

x) is less than 6 kb, preferably less than 3 kb;

xi) is from a rodent or primate;

xii) comprises a natural full length coding sequence;

xiii) is a hybridization probe for a gene encoding said IL-1δ or IL-1ε;

xiv) is a PCR primer, PCR product, or mutagenesis primer; or

xv) encodes an IL-1δ or an IL-1ε protein.

12. A cell, transformed with said nucleic acid of Claim 10.

13. The cell of Claim 12, wherein said cell is:

a) a prokaryotic cell;
b) a eukaryotic cell;
c) a bacterial cell;
d) a yeast cell;
e) an insect cell;
f) a mammalian cell;
g) a murine cell;
h) a primate cell; or
i) a human cell.

14. A kit comprising said nucleic acid of Claim 11, and:

a) a compartment comprising said nucleic acid;
b) a compartment further comprising a mammalian IL-1δ or IL-1ε protein or polypeptide; and/or
c) instructions for use or disposal of reagents in said kit.

15. An isolated or recombinant nucleic acid that

a) hybridizes under wash conditions of 40° C and less than 1M salt to SEQ ID NO: 1;
b) hybridizes under wash conditions of 40° C and less than 1 M salt to SEQ ID NO: 3, 5, 12 or 14.

16. The nucleic acid of Claim 15, wherein:

a) said wash condition is at 50° C and/or 500 mM salt; and
b) exhibits identity over at least 20 nucleotides to SEQ ID NO: 1, 3, 5, 12, or 14.

17. The nucleic acid of Claim 16, wherein:

a) a wash condition is at 65° C and/or 150 mM salt; or
b) exhibits identity over at least 50 nucleotides to SEQ ID NO: 1, 3, 5, 12, or 14.

18. A method of modulating a cell involved in an inflammatory response comprising contacting said cell with an agonist or antagonist of a mammalian IL-1δ or IL-1ε polypeptide of Claims 1.

19. The method of Claim 18, wherein:

a) said contacting is in combination with an agonist or antagonist of IL-1α, IL-1RA, IL-1β, IL-1γ, IL-2, and/or IL-12;

b) said contacting is with an antagonist, including binding composition comprising an antibody binding site which specifically binds an IL-1δ or IL-1ε; or

c) said modulating is regulation of IFN-γ production.

20. A method of:

A) making an antiserum comprising an antibody of Claim 7, comprising immunizing a mammal with an immunogenic amount of:

a) a rodent IL-1δ polypeptide;

b) a peptide sequence comprising a 12 consecutive amino acid segment of SEQ ID NO: 2;

c) a rodent or primate IL-1ε polypeptide; or

d) a peptide sequence comprising a 12 consecutive amino acid segment of SEQ ID NO: 6, 13, or 15;

thereby causing said antiserum to be produced; or

B) producing an antigen:antibody complex, comprising contacting:

a) a rodent IL-1δ protein or peptide with an antibody of Claim 7; or

b) a rodent or primate IL-1ε protein or peptide with an antibody of Claim 7;

thereby allowing said complex to form.

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